

IN THE SPECIFICATION

Please replace paragraph [0006] with the following replacement paragraph:

Thus, there is a need for an integrated printer that can receive multimedia data from a peripheral device, process it, and deliver an output to a printed document or other media. It is further desirable that such a ~~print~~ printer be able to perform at least some of the necessary processing itself, while some of the processing may be performed on an external device, rather than require an attached computer or other device to perform all of the processing.

Please replace paragraph [0007] with the following replacement paragraph:

The present invention overcomes the deficiencies and limitations of the prior art by providing systems and methods in which multimedia data from a peripheral device are received by a printer, the data are processed, and the printer outputs the result. In a typical hardware configuration for such a multifunction printer, a printer includes a peripheral interface that communicates with a peripheral device, a print engine that produces a paper or other printed output, and one or more electronic devices that produce a related electronic output. Together, the printed and electronic outputs provide an improved representation of the multimedia data from the peripheral device over that of a ~~convention~~ conventional paper printer.

Please replace paragraph [0024] with the following replacement paragraph:

The printing system 100 further includes a network interface 157, functionally coupled to the multimedia processing system 125. The network interface 157 allows the printing system 100 to

communicate with other electronic devices, such as network device 170 and external service 160. In one embodiment, the network device 170 is a computer system, such as a personal computer. Network device 170 includes processing capability for performing processing on the multimedia data. In this way, the network device 170 can relieve the printing system 100 of some of the processing load required to produce printed and electronic outputs from the multimedia data. In one embodiment, the network device 170 includes a user interface 110b that allows a user to make selections about the processing of the multimedia and/or about the format or destination of the printed or electronic outputs. In other embodiments, the user interface 110b can be located on another attached device, or the user interface 110a can be located on printer 100 itself. The user interface 110 interfaces 110a, 110b may include a display system, software for communicating with an attached display, or any number of embodiments described in co-pending U.S. patent application entitled, "User Interface for Networked Printer," filed March 30, 2004, Attorney Docket No. 20412-08456, which application is incorporated by reference in its entirety.

Please replace paragraph [0028] with the following replacement paragraph:

In another embodiment, the system 100 includes a user interface ~~[[110]]~~ 110a to allow a user to preview the generated outputs. If ~~[[215]]~~ the user desires to refine 215 the processing, the user can enter commands, which the printing system 100 receives 220 by way of the user interface ~~[[110]]~~ 110a. Based on the user's commands, the printing system 100 then repeats the processing 210 of the media data to generate new printed and electronic outputs. This refinement process can be iterated until the user is satisfied with the printed and electronic outputs. When this occurs, the user indicates that the printing should commence, for example, by invoking a print command with the user interface ~~[[110]]~~ 110a. The multimedia processing system 125 then sends the generated

printed output to the printed output system 115 and the electronic output to the electronic output system 120. The printed output system 115 then creates 225 a printed output 165, and the electronic output system 120 creates 230 an electronic output 175.

Please replace paragraph [0031] with the following replacement paragraph:

As shown in FIG. 3, the printer 100 may include a communication interface 305 that allows the printer 100 to be communicatively coupled to another electronic device. Depending on the desired input, the interface 305 may allow the ~~computer~~ printer 100 to communicate with a wide variety of different peripheral devices 150 that can provide the printer 100 multimedia data to print. Without intending to limit the types of devices, the interface 305 may allow the printer 100 to received media data from peripheral devices 150 such as computer systems, computer networks, digital cameras, cellular telephones, PDA devices, video cameras, media renderers (such as DVD and CD players), media receivers (such as televisions, satellite receivers, set-top boxes, radios, and the like), digital video recorders (such as a TiVO), a portable meeting recorder, external storage devices, video game systems, or any combination thereof. The connection type for the interface 305 can take a variety of forms based on the type of device that is intended to be connected to the printer 100 and the available standard connections for that type of device. For example, the interface 305 may comprise a port for connecting the device using a connection type such as USB, serial, FireWire, SCSI, IDE, RJ11, parallel port (e.g., bi-directional, Enhanced Parallel Port (EPP), Extended Capability Port (ECP), IEEE 1284 Standard parallel port), optical, composite video, component video, or S-video, or any other suitable connection type.

Please replace paragraph [0036] with the following replacement paragraph:

In another embodiment, the printer 100 comprises a media broadcast receiver 345. The media broadcast receiver 345 can be tuned to a media broadcast from a media broadcaster. Types of media broadcasts that can be tuned into and received include broadcasts from the Internet, cable, television, radio, and any other broadcasted media source. To tune into a particular media broadcast, a user may select the broadcast using the user ~~interface 110~~ interfaces 110a, 110b. In one embodiment, the broadcast receiver 345 is an embedded TV receiver, an embedded radio receiver, an embedded short-wave radio receiver, an embedded satellite radio receiver, an embedded two-way radio, an embedded cellular phone, or a combination of any of the above. However, these are not meant to be limiting, as the broadcast receiver 345 can be any device that is capable of tuning into a signal and receiving media data therefrom.

Please replace paragraph [0039] with the following replacement paragraph:

In another embodiment, the printer may include video capture hardware 355. In one embodiment, the video capture hardware 355 is designed to be coupled to a computing system by a video cable thereof. The video cable from a display is attached to the printer 100, where the video signal is split with one signal directed to the computing system and another signal to the video capture hardware 355. The video capture hardware 355 performs a differencing between successive frames of the video signal and saves frames with a difference that exceeds a threshold on a secondary storage in the printer 100. This offloads such processing from the computing system, thereby improving responsiveness and user experience and providing an easily browseable record of a user's activities during the day. To take advantage of the printing capabilities of the multifunction

printer, the user can choose to print selected frames captured by the video capture hardware 355. The printing can be generated on demand with the user interface [[110]] 110a on the printer or from the attached computing system, or automatically with scheduling software. In this way, a user can view a replay of any actions taken on the computing system. Notably, the captured content can be effectively compressed because the differences between frames are small.

Please replace paragraph [0040] with the following replacement paragraph:

In another embodiment, the video capture hardware 355 is coupled to a converter module 360, such as VGA-to-NTSC conversion hardware. Such an embodiment could be used in conjunction with a projector to capture presentations made with the projector. Audio capture could also be employed to record a speaker's oral presentation. To use the video capture hardware 355 in this way, a user could connect a laptop or other computing system and the projector to the printer 100. The printer 100 then captures video frames as fast as it compares them to the most recently captured frame and retains those frames that are different. A parallel audio track may also be saved. This capability could also be used in a desktop printer to record a presentation made on a computing system connected to the printer. The printer can then ~~serve~~ save the audio itself or it can be written to a digital medium, such as an SD disk that can be played from a cell phone or a PDA. The audio could also be written to a bar code on a printed representation.

Please replace paragraph [0041] with the following replacement paragraph:

In another embodiment, the printer 100 comprises an ultrasonic pen capture device [[365]]. In this embodiment, the printer 100 includes [[a]] an ultrasonic pen capture device hardware module 365 that serves as a low-cost sensor that can be coupled to a paper document. With such a device, a

user can write on a paper document, and the results are saved on the printer 100. In one form, the captured results include the user's writing in combination with time data that indicates when the writing occurred. This time-based media data can then be printed or sent (e.g., by electronic mail) to someone else, for example showing a user's notes as well as time stamps that indicate when the notes were taken.

Please replace paragraph [0043] with the following replacement paragraph:

The printed output system 115 may comprise any standard printing hardware, including that found in standard laser printers, inkjet printers, thermal wax transfer printers, dye sublimation printers, dot matrix printers, plotters, or any other type of printing mechanisms suitable for creating a printer image on an appropriate physical medium. In the example described herein, a laser printer mechanism is described; however, it should be understood that any suitable printing system can be used. The printing system 100 includes any necessary subsystems, as ~~[[know]]~~ known by one skilled in the art, to print on a printable medium, such as a sheet of paper.

Please replace paragraph [0058] with the following replacement paragraph:

In an embodiment, as illustrated in FIG. 7, the device detection module 602 automatically detects 702 the docking (or communicative coupling via a network) of a peripheral device 150 and downloads multimedia data from the peripheral device for processing by the printer 100. The multimedia processor 125 can utilize such protocols as the Plug and Play (PnP) or Universal Plug and Play (UPnP) protocol to automatically detect and communicate with devices that have PnP capabilities. With UPnP, ~~a device~~ devices can automatically communicate with each other directly, convey ~~[[its]]~~ their capabilities, and learn about the presence and capabilities of other devices.

Those skilled in the art will recognize that other detection methods, such as polling techniques (e.g., 704), may be used to automatically detect the coupling of a peripheral device. Alternative systems for connection, such as IEEE 1394 cabling or Universal Serial Bus cabling, have equivalent standards for device and capability discovery. Alternatively, one embodiment might detect the presence of an active electrical circuit in a physical connector, such as an RS232 serial port connector, between the docked device and printer 100.

Please replace paragraph [0060] with the following replacement paragraph:

The communication module 604 sends 706 a request to the peripheral device for multimedia data to be downloaded to the printing system 100. Once the multimedia processing system 125 receives the multimedia data, the multimedia processing and formatting module 606 contains logic to format and process 708 the multimedia data. In an embodiment, the format may be pre-defined and configured for specific peripheral devices. In other embodiments, a user may design a layout format for the multimedia data via the user ~~interface 110~~ interfaces 110a, 110b. In yet another embodiment, a user may upload a predefined format. The multimedia processing and formatting module 606 provides an organized representation of the multimedia data depending on a particular peripheral device 150. For example, the formatter 606 may generate a format suitable for representation on printed output 165. Thus, if a video camcorder is docked directly to the printer, the format might comprise key frames with bar codes linking the key frames to different segments of a video file that may be used to replay a recorded video describing the event. Although the media processing system 125 is configured to perform at least some of the processing of the media data on the printer 100, it is preferably coupled to an external computing device that shares some of the computing burden. Network interface 157 allows communication with external network device 170

and/or external service 160, which are capable of performing at least a portion of the multimedia processing functionality. The network device 170 may be a computer system or a dedicated media processing hardware device. In this way, the printer 100 relieves the source of the multimedia from at least some of the processing burden required to implement the printer's functionality, but the printer 100 need not shoulder the entire burden. The printer 100 can thus avoid slow-downs that can result from a heavy processing load, which may be especially important for shared printers.

Please replace paragraph [0064] with the following replacement paragraph:

Once a print request 802 is sent by user 850 and notification is requested 804 from the UI listener [[804]] 854, the print job is sent 806 by application 852. Here, the print job contains embedded information including the network address of the UI listener 854, authentication information, and the latest time that the client will be listening for requests.

Please replace paragraph [0065] with the following replacement paragraph:

If the printer 856 requires additional information [[of]] or confirmation, it sends a request 808, which is detected by the UI listener 854, which displays a dialog box 810 to obtain input from the user [[810]] 850. An example of such a request might be a request for a password or user confirmation code that the user must enter to access ~~a database~~ an application server 858. The user's input is included in a reply 812 sent to the printer. If the reply does not satisfy the printer it may ask for additional information (not shown). If the reply does satisfy the printer, it takes a next step. This step might be to perform an external action such as sending an email (not shown). The next step might also be sending a request for information 814 to an application server (such as a database) 858. In this example, application server 858 also sends a request for information 816,

which is detected by the UI listener 854. The user 850 is prompted 818 and his response forwarded 820 to the application server 858. In this example, a reply 822 is then sent from the application server 858 to the printer 856. It will be understood that a particular embodiment may include either or none of requests 808 and 816 without departing from the spirit of the present invention.